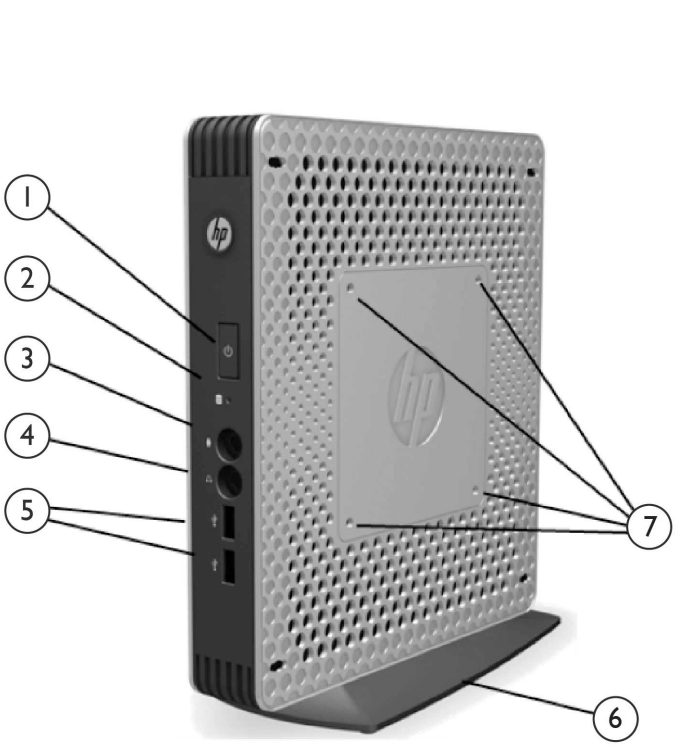
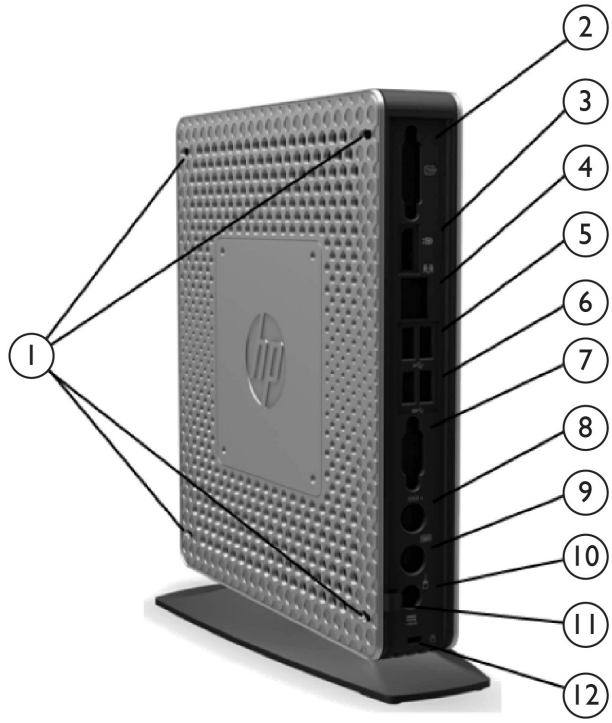
Overview





FRONT

1. Power button (with integrated power indicator light)
2. Flash drive activity indicator light
3. Audio connector (mic/line in)
4. Audio connector (headphone/line out)
5. USB 2.0 connectors (two)
6. Removable stand for vertical orientation
7. Mounting points for HP Quick Release or other VESA mount

BACK

1. Mounting location for four (4) horizontal mounting feet
2. DVI-I monitor out
3. DisplayPort 1.1a monitor out
4. Ethernet RJ-45 connector
5. USB 2.0 connectors (2)
6. USB 3.0 connectors (2)
7. Serial connector
8. PS/2 keyboard connector
9. PS/2 mouse connector
10. +19V DC power input
11. Power cable retention slot
12. Cable lock slot

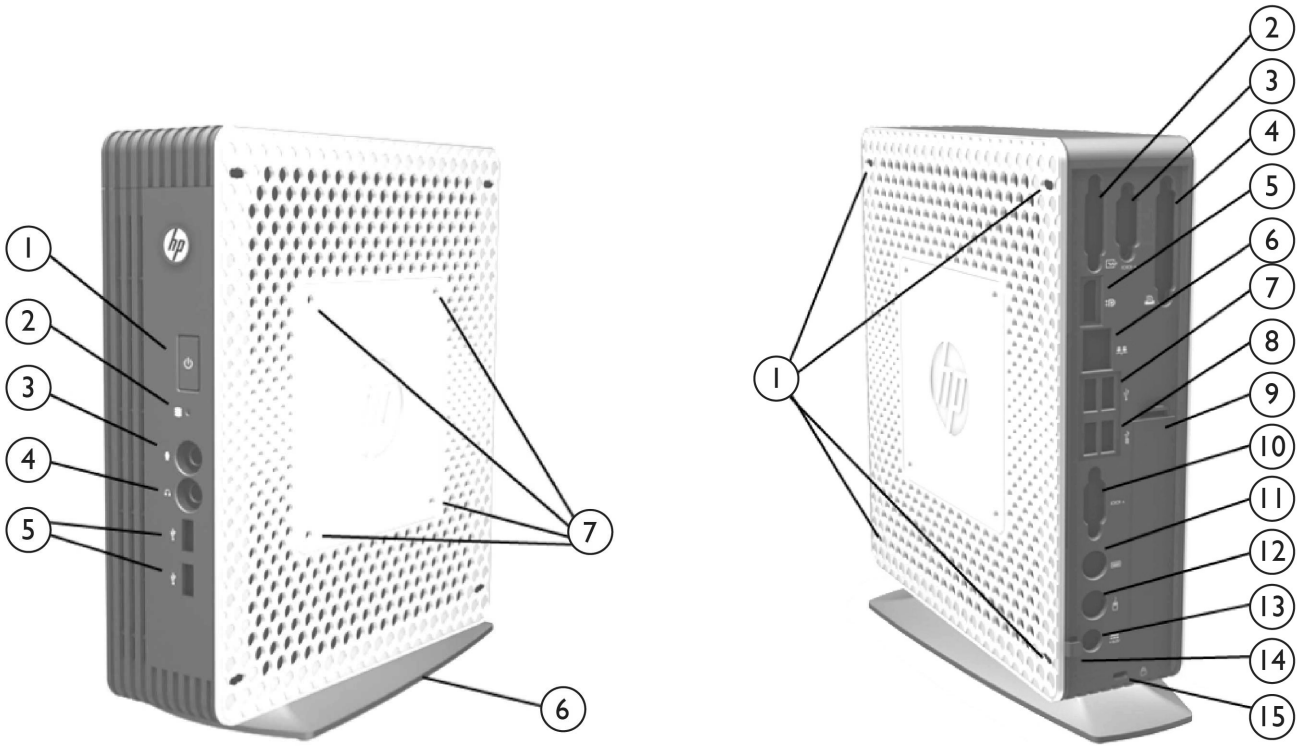
Overview

HORIZONTAL

1. Horizontal mounting feet installed

NOTE: Horizontal mounting feet MUST BE INSTALLED for proper device operation if device is mounted horizontally.

HP t610 PLUS Flexible Thin Client



FRONT

1. Power button (with integrated power indicator light)
2. Flash drive activity indicator light
3. Audio connector (mic/line in)
4. Audio connector (headphone/line out)
5. USB 2.0 connectors (two)
6. Removable stand for vertical orientation
7. Mounting points for HP Quick Release or other VESA mount

BACK

1. Mounting location for four (4) horizontal mounting feet
2. DVI-I monitor out
3. Serial connector
4. Parallel connector
5. DisplayPort 1.1a monitor out
6. Ethernet RJ-45 connector
7. USB 2.0 connectors (2)

8. USB 3.0 connectors (2)
9. PCI Express (half-height) card slot (in quad-head video configurations - 2 x DVI-I ports)
10 Serial connector
11. PS/2 keyboard connector
12. PS/2 mouse connector
13. +19V DC power input
14. Power cable retention slot
15. Cable lock slot

At A Glance

Hardware features:

- Two chassis: Standard (slim) and PLUS (expansion)
- AMD G-Series T56N 2nd generation 1.65 GHz dual-core 64-bit accelerated processing unit (APU) for excellent processing and graphics performance
- AMD Radeon HD 6320 integrated graphics with hardware acceleration of streaming video formats, DirectX 11 support, DVI-I and DisplayPort 1.1a video ports, DVI-to-VGA adapter included, supports video resolutions up to 2560x1600
- DDR3-1600 (PC3-12800) SDRAM; two SODIMM slots supporting up to 8 GB (2x4GB)
- Active thermal management monitors component operating temperatures, throttles APU operation if appropriate, and prevents unit thermal shutdown
- HP t610 PLUS factory-installed quad-head video option: Dual-head AMD FirePro 2270 video card which, when combined with on-board video ports, provides up to 4 digital video ports output (WES 7 quad-head configurations require 4 GB RAM): Up to four digital monitors at 1920x1200 through one DisplayPort video port plus three DVI-I video ports or up to three digital monitors at 2560x1600 (using optional DMS-59-to-DisplayPort adapter)
- HP t610 PLUS factory-installed up to six-head video option: Quad-head AMD FirePro 2460 video card which, when combined with on-board video ports, provides up to 6 digital video ports output (WES 7 quad-head configurations require 4 GB RAM): Up to six digital monitors at 1920x1200 through one DVI-I video port and five DisplayPort video ports, or up to four digital monitors at 2560x1600
- LAN - 10/100/1000 Mb/s Ethernet
- Optional Broadcom 802.11 a/b/g/n Wi-Fi NIC including dual internal antennas for superior performance and security
- USB ports: 2 x USB 2.0 on front, 2 x USB 2.0 on rear, and 2 x USB 3.0 on rear
- Legacy ports standard: PS/2 keyboard and PS/2 mouse, and 1 x Serial
- Legacy ports PLUS: PS/2 keyboard and PS/2 mouse, 2 x Serial, and 1 x Parallel
- Security features: TCG certified TPM chipset, BIOS designed to address NIST SP 800-147 guidelines, cable lock slot, and power cord retention slot to prevent accidental disconnects
- HP t610 PLUS expansion: Half-height PCI Express x4 (physically x16) expansion slot (not available with quad-head or six-head digital monitor configurations)
- Multiple solid-state drive options ranging from 1GB up to 16GB
- Qualified 3rd-party Fiber NIC PCIe card options (Allied Telesis)
- HP Fiber Fast Ethernet NIC factory-installed option on HP t610 PLUS (leaves PCIe slot open for video or other expansion cards)
- ENERGY STAR® qualified and EPEAT® Gold registered where applicable/supported (except for models with quad-head or six-head video option installed). See http://www.epeat.net for registration status by country.
- Post-consumer recycled plastics content greater than 20% total unit plastics (by weight)
- Low halogen material content
- All models TAA Compliant (in North America)

Software features for HP t610 with HP ThinPro and HP Smart Zero Technology software:

Overview

- HP ThinPro and HP Smart Zero Technology are HP's purpose-built thin client operating systems built from Linux
- HP ThinPro offers an easy-to-use, easy-to-configure, locked-down interface -- HP Connection Manager -- that allows administrators to quickly create server connections for end users.
- HP Smart Zero Clients using Smart Zero Client Technology boot directly into a user log-in on the server or portal for which they are configured. No local thin client user interface means the end-user can get to work without special training on the access device.
- ICA and RDP support for accessing Citrix and Windows resources
- VMware Horizon View PCoIP support for accessing VMware Horizon View sessions
- VDI broker support includes VMware Horizon View, Citrix XenDesktop (with CDA mode utility)
- Multimedia and USB redirection support
  - Citrix HDX MediaStream (multimedia redirection)
  - Citrix HDX Plug-n-Play (USB redirection)
- Quad-head and six-head video configurations support
- Integrated 802.11a/b/g/N with dual internal antennas configurations available
- Standard configurations: 1 GB Flash drive and 2 or 4 GB RAM
- Improved Quality of Experience for End User using HP Velocity
  - Available only on HP thin clients
  - HP Velocity enables IT managers to monitor network activity and optimize end-user experience
  - HP Velocity intelligently reduces network packet loss and retransmissions providing a better experience for the end user

Software features for Genuine Microsoft Windows® Embedded 8 Standard (WE8S):

- The newest Microsoft embedded software based on Windows 8
- A 64-bit operating system for improved performance and support for larger memory installations (up to 16 GB in HP t610 and HP t610 PLUS)
- Smooth, immersive experiences with technologies like Multi Touch and Windows 8 applications
- The latest RDP 8 and Remote FX client software
- Windows Embedded 8 Standard offers a secure platform that is intelligent systems ready
- Internet Explorer 10 for genuine Internet Explorer browsing with improved HTML 5 support and Web-application interfaces
- Latest protocol support from Citrix On-Line Plug-in (ICA) 13.3, RDP 8 w/RemoteFX, and VMware Horizon View Mgr 5.2
- Excellent rich multimedia experience and enhanced USB device support in VDI environments
- Quad-head and six-head video configurations support
- Optional Broadcom 802.11a/b/g/n Wi-Fi NIC with dual internal antennas configurations available
- Standard configurations: 16 GB Flash drive and 4 GB SDRAM
- Improved Quality of Experience for End User using HP Velocity
  - Available only on HP thin clients
  - HP Velocity enables IT managers to monitor network activity and optimize end-user experience
  - HP Velocity intelligently reduces network packet loss and retransmissions providing a better experience for the end user

All Windows Embedded 8 devices must be activated. Customers have the option via Internet connection, telephone, or indirectly through a proxy for large deployments.

Software features for Genuine Windows® Embedded Standard 7E (WES 7E):

- Microsoft® Windows® Embedded Standard 7 SP1 with support for RemoteFX and local applications, providing a richer user experience
- Internet Explorer 9 for genuine Internet Explorer browsing and Web-application interfaces
- Excellent rich multimedia experience and enhanced USB device support in VDI environments
- Latest protocol support from Citrix On-Line Plug in (ICA) 13.3, RDP 8 w/RemoteFX, and VMware Horizon View Mgr 5.2
- Enhanced Write Filter and File-Based Write Filter provide complete flexibility to protect the entire Flash disk, or configure areas of the disk for persistent access by local applications
- Microsoft Firewall for enhanced data security

Overview

- Support 802.1x LAN-based authentication for greater security
- HP Universal Print Driver provides instant access to a range of HP print devices without downloading separate drivers.
- Quad-head and six-head digital video configurations available
- Optional Broadcom 802.11a/b/g/n Wi-Fi NIC with dual internal antennas configurations available
- Standard configurations:
  - HP t610 standard chassis -16 GB Flash drive and 2 or 4 GB SDRAM
  - HP t610 PLUS chassis - 16 GB Flash drive and 4 GB SDRAM
  - **NOTE:** HP recommends 16 GB Flash and 4GB SDRAM for WES 7 configurations
- Improved Quality of Experience for End User using HP Velocity
  - Available only on HP thin clients
  - HP Velocity enables IT managers to monitor network activity and optimize end-user experience
  - HP Velocity intelligently reduces network packet loss and retransmissions providing a better experience for the end user

Software features for Genuine Windows® Embedded Standard 7P (WES 7P):
In addition to the software features in WES 7E:

- Internet Explorer 9 browser
- Windows Touch (Multi-touch support) for touch-screen monitors
- Multi-language support brings multilingual capabilities letting users select a preferred display language, or to easily install a number of other languages
- DirectAccess feature allows remote users to securely access enterprise shares, websites, and applications without connecting to VPN
- BrancheCache WAN optimization technology
- AppLocker application "whitelisting"
- AntiMalware and Windows Defender software providing additional protection from virus, worms, and spyware
- Snipping tool for easy screen capture copying and pasting
- Remote media streaming to enhance multimedia user experience
- Photo Viewer for easy image viewing
- Standard configurations:
  - HP t610 standard chassis -16 GB Flash drive and 4 GB RAM
  - HP t610 PLUS chassis -16 GB Flash drive and 4 GB RAM
- Improved Quality of Experience for End User using HP Velocity
  - Available only on HP thin clients
  - HP Velocity enables IT managers to monitor network activity and optimize end-user experience
  - HP Velocity intelligently reduces network packet loss and retransmissions providing a better experience for the end user

Software features for Genuine Windows® Embedded Standard 2009:

- Windows Embedded Standard 2009 operating system with support for local applications
- Internet Explorer 9 for genuine Internet Explorer browsing and Web-application interfaces
- Great rich multimedia experience and enhanced USB device support in VDI environments
- Latest Protocol support from Citrix On-Line Plug in (ICA) 13.3, RDP 7.1, and VMware Horizon View Mgr 5.2
- Enhanced Write Filter and File-Based Write Filter provide complete flexibility to protect the entire Flash disk, or configure areas of the disk for persistent access by local applications
- Support 802.1x LAN-based authentication for greater security
- Optional Broadcom 802.11a/b/g/n Wi-Fi NIC with dual internal antennas configurations available
- Standard configurations: 2 GB Flash drive and 2 or 4 GB SDRAM
- Improved Quality of Experience for End User using HP Velocity
  - Available only on HP thin clients
  - HP Velocity enables IT managers to monitor network activity and optimize end-user experience
  - HP Velocity intelligently reduces network packet loss and retransmissions providing a better experience for the end user

Overview

Warranty:
HP Total Care Warranty and Services: limited three-year hardware warranty in most regions. HP Care Pack Services extend service contracts beyond your standard warranties. For more details visit http://www.hp.com/go/lookuptool.

OPERATING SYSTEMS

HP t610 Flexible Series Thin Client models are pre-configured with one of the following operating systems.

HP ThinPro
HP Smart Zero Technology
Windows Embedded 8 Standard
Windows Embedded Standard 7E
Windows Embedded Standard 7P
Windows Embedded Standard 2009

PROCESSOR / CHIPSET

AMD Dual-Core T56N 64-bit APU with Radeon HD 6320 Graphics (1.65 GHz, 1 MB L2 cache)
AMD A55E chipset

MEMORY (Flash and SDRAM)

	HP Smart Zero	HP ThinPro	WES 2009	WES 7E	WES 7P	WE 8S
Minimum required flash memory (boot drive)	1 GB	1 GB	2 GB	8 GB	8 GB	16 GB
System Memory Type	DDR3-1600 (PC3-12800) SODIMM SDRAM					
Minimum required system memory	2 GB		2 GB	2 GB	4 GB	4 GB
System memory reserved for graphics (minimum)	Depends on installed SDRAM size for default Auto setting: • 2 GB SDRAM and under auto-selects to 256 MB, • Greater than 2 GB SDRAM auto-selects to 512 MB					
Maximum system memory	4 GB				8 GB	
Memory slots	2					

NOTE: HP t610 PLUS with WES 7 quad-head or six-head video configurations require 4 GB SDRAM for optimum operation.

GRAPHICS

AMD Radeon HD 6320 graphics

Mode	Color depth	Refresh rate (Hz)
800 x 600	8/16/32 bit	60, 75, 85
1024 x 600	8/16/32 bit	60, 75, 85
1024 x 768	8/16/32 bit	60, 70, 75, 85
1152 x 864	8/16/32 bit	60, 75, 85
1280 x 720	8/16/32 bit	60, 75, 85
1280 x 768	8/16/32 bit	60, 75, 85
1280 x 800	8/16/32 bit	60
1280 x 960	8/16/32 bit	60, 75, 85
1280 x 1024	8/16/32 bit	60, 75, 85
1366 x 768	8/16/32 bit	60
1400 x 1050	8/16/32 bit	60, 75, 85
1440 x 900	8/16/32 bit	60, 75, 85
1600 x 900	8/16/32 bit	60
1600 x 1200	8/16/32 bit	60, 75 ,85
1680 x 1050	8/16/32 bit	60
1920 x 1080	8/16/32 bit	60, 75, 85
1920 x 1200	8/16/32 bit	60, 75
2048 x 1536 (DisplayPort, only)	8/16/32 bit	60
2560 x 1600 (DisplayPort, only)	8/16/32 bit	60

NOTE: This table represents a sample of possible modes that this controller is capable of displaying but various factors such as the capability and EDID information returned by the attached monitor, the interface used (DVI-I/DisplayPort or optional D-SUB with dongle), and dual monitor mode may limit the availability of modes, color depth, and/or refresh rate.

QUAD-HEAD DIGITAL MONITOR CONFIGURATION

AMD FirePro™ 2270 Multi-View Professional Graphics dual-head graphics card

Up to two monitor ports on the dual-head card work in addition to the two monitor ports on the motherboard to provide quad-head capabilities at a bargain price. Optional output dongles can provide dual DisplayPort outputs from the graphics card if desired. With the DisplayPort adapter on the graphics card, two 2560x1600 displays can be connected simultaneously.

- Factory Installed Option
- Requires PLUS chassis and occupies PCIe slot
- 512MB memory
- PCIe 2.1, x1
- DMS-59 (ships with dual DVI-I dongle)
- Maximum resolution
  - DisplayPort: 2560x1600 (on motherboard)
  - DVI/VGA: 1920x1200 (1 on motherboard, 2 on graphics card)
- Maximum resolution with optional DMS-59 to DisplayPort adapter:
  - 3 x DisplayPort: 2560x1600 (1 on motherboard, 2 on graphics card)
  - 1 x DVI/VGA: 1920x1200 (1 on motherboard)
- OpenGL 4.1

SIX-HEAD DIGITAL MONITOR CONFIGURATION

AMD FirePro™ 2460 Multi-View Professional Graphics quad-head graphics card

Up to four monitor ports on the quad-head card work in addition to the two monitor ports on the motherboard to provide support for up to six simultaneous digital monitors at a bargain price. Mini DisplayPort connectors on the rear of the card are supported with supplied mini-DisplayPort to standard DVI-D adapter cables. Up to four 2560x1600 displays can be connected simultaneously to the thin client.

- Factory Installed Option
- Requires PLUS chassis and occupies PCIe slot
- 512MB memory
- PCIe 2.1, x1
- 4 x mini-DisplayPort connectors out
- Maximum resolution
  - DisplayPort: 2560x1600
  - DVI/VGA: 1920x1200
- Supplied with four mini-DisplayPort to DVI-D adapter cables
- OpenGL 4.1

INPUT/OUTPUT (peripheral support)

Keyboard	USB or PS/2 (varies by region)
Mouse	USB or PS/2 (varies by region)
Printer	Local and/or network printers (RDP, ICA, LPD)
Video	Standard configuration: AMD Radeon HD 6320 graphics: 1x DVI-I and 1x DisplayPort 1.1a (DVI-to-VGA adapter included) Quad-head video option: AMD FirePro™ 2270 Multi-View Professional Graphics dual-head graphics card (for up to four total digital monitors output) available as factory-installed option on PLUS models only (4 GB RAM required for quad-head WES 7 configurations): Up to 4 x 1920x1200, or 3 x 1920x1200 + 1 x 2560x1600, or with optional DMS-59 to DisplayPort adapter 1 x 1920x1200 + 3 x 2560x1600 Six-head video option: AMD FirePro 2460 Multi-View Professional Graphics quad-hed graphics card (for up to six total digital monitors output) available as factory-installed option on PLUS models only (4 GB RAM required for six-head WES 7 configurations): UP to 6 x 1920x1200, or 4 x 2560x1600

AUDIO/VIDEO

Output	Internal amplified speaker 1/8-inch mini jack Full 24-bit stereo up to 192-kHz sample rate.
Input	1/8-inch mini jack microphone 24-bit stereo, up to 192 kHz sample rate
Audio CODECS with hardware acceleration support	MP3 AAC stereo & HE AAC WMA stereo
Video CODECS with hardware acceleration support	MPEG-4 part 2 (DivX, Xvid) MPEG-4 part 10 (H.264, AVC) WMV 7/8/9/ VC-1 & ASF Demuxer

Technical Specifications

HARDWARE SECURITY

Security lock slot (cable lock sold separately)
Built-in power cord retention clip

NETWORKING

Hardware networking

Gigabit Ethernet network interface (RJ-45)
Wake on LAN (WOL)
PXE
TCP/IP with DNS and DHCP

Software networking

	ThinPro	HP Smart Zero	WES 7E WES 7P WE 8S	WES 2009
Point-to-Point Protocol (PPP)			X	X
Point-to-Point over Ethernet (PPPoE)			X	X
Direct Connection through RS-232	X	X	X	X
Point-to-Point Tunneling Protocol (PPTP)	X	X	X	X
Layer-2 Tunneling Protocol (L2TP)	X	X	X	X
Server Network Time Protocol (SNTP)	X	X	X	X

WI-Fi Network Interface (select models)

Adapter	Broadcom 802.11a/b/g/n Wi-Fi Adapter
Form Factor	PCI-Express Half Mini Card with dual, internal antennas
Security	Supports 64- and 128-bit WEP, WPA, WPA2, AES, TKIP HP ThinPro and HP Smart Zero Technology: 802.1x authentication types: EAP-TLS, EAP-TTLS, EAP-PEAP, LEAP WES 2009, WES 7E, and WES 8S: 802.1x authentication types: EAP-TLS, EAP-TTLS, EAP-PEAP, EAP-FAST, LEAP

HP Fiber Fast Ethernet Network Interface Card (factory-installed option)

Adapter	Allied Telesis AT-27MINI Fiber Fast Ethernet Network Interface Card
Available in	HP t610 PLUS chassis configurations, only
Form Factor	Custom-designed card plugs into PCI-Express Half Mini Card slot, and mounts into HDD bay in HP t610 PLUS chassis
Management Features	WMI, ACPI 2.0/w01, PXE 2.1 boot ROM, SNMP
Ethernet	IEEE 802.1p (Quality of Service) IEEE 802.2 (LLC) IEEE 802.3ac (MAC) IEEE 802.3u (100Mbps) IEEE 802.1as (Audio Bridging) P802.1Qav P802.1Qat (SRP) 1588-2000 (PTP)
Network Controller	Broadcom BCM57762
Connectors	SC
Optical Specifications	Output Optical Power -20 (min) -17 (typ) -14 (max) dBm Optical Sensitivity -34 (typ) -32 (max) dBm
Maximum Cabling Distance	Full-duplex Up to 2000 m (5,560 ft) Haf-duplex Up to 412 m (1,351 ft)
Status Indicators	LED 1 port On 100Mbps link up Blink Activity Off 100Mbps link down
Power consumption	2 Watts (typ)
Compliance	RoHS, UL, FCC/EN55022 Class A, TUV, EN55024, CE, C-TICK, VCCI
Supported by thin client operating systems	HP Smart Zero Technology and HP ThinPro Microsoft WES8, WES 7E, WES 7P, and WES 2009

I/O PORTS, SLOTS & CONNECTORS

HP t610 (standard chassis)

4 USB 2.0 ports (two in front, two in rear)
2 USB 3.0 ports (in rear)
1 DVI-I (1 DVI-to-VGA adapter included in carton)
1 DisplayPort
2 PS/2
1 serial
1 RJ-45

HP t610 PLUS (expansion chassis)

4 USB 2.0 ports (two in front, two in rear)
2 USB 3.0 ports (in rear)
1 DVI-I (standard configuration)
1 DisplayPort (standard configuration)
2 PS/2
2 serial
1 parallel
1 RJ-45
1 half-height PCIe x4 card slot (occupied with quad-head / six-head video configuration)

Technical Specifications

SERVER OS COMPATIBILITY/SUPPORT

Citrix XenApp 5 and later
Citrix XenDesktop 3 and later
Citrix Presentation Server 4.0 and later
Windows Server 2003
Windows Server 2008r2 Terminal Services
Windows 2012 Server Remote Desktop services (WES Only)
VMware Horizon View Virtual Desktop Infrastructure

SOFTWARE for HP t610 and HP t610 PLUS

Host Environment	Protocol	Smart Zero	ThinPro	WE 8S	WES 7E	WES 7P	WES 2009
Microsoft Remote Desktop Services	RemoteFX (RFX)	✓	✓	✓	✓	✓	
	RDP	✓	✓	✓	✓	✓	✓
Citrix	ICA	✓	✓	✓	✓	✓	✓
	HDX	✓	✓	✓	✓	✓	✓
VMware Horizon View	RDP	✓	✓	✓	✓	✓	✓
	PCoIP	✓	✓	✓	✓	✓	✓
Protocol Clients		**Smart Zero**	**ThinPro**	**WE 8S**	**WES 7E**	**WES 7P**	**WES 2009**
Citrix Receiver*		12.1.5	12.1.5	3.3 (S)	3.3 (E)	3.3 (E)	3.3 (E)
Citrix Online Plugin		12.1.5	12.1.5	13.3	13.3	13.3	13.3
Microsoft Remote Desktop Client				8	8	8	7
VMware Horizon View Client*		1.7	1.7	5.2	5.2	5.2	5.2
Remote Graphics Software (RGS)			via add-on	✓	✓	✓	✓
HP TeemTalk Terminal Emulator			7.3	7.3	7.3	7.3	7.3
Free RDP		1.0	1.0				
Browser Support		**Smart Zero**	**ThinPro**	**WE 8S**	**WES 7E**	**WES 7P**	**WES 2009**
Mozilla Firefox		19	19				
Internet Explorer				10	9	8	8
Security		**Smart Zero**	**ThinPro**	**WE 8S**	**WES 7E**	**WES 7P**	**WES 2009**
Smart Card		✓	✓	✓	✓	✓	✓
logon Manager				✓	✓	✓	✓
Read Only Operating System				✓	✓	✓	✓
802.1x		✓	✓	✓	✓	✓	✓
Enhanced Write Filter (EWF) File-Based Write Filter (FBWF) Unified Write Filter (UWF)				UWF	EWF FBWF	EWF FBWF	EWF FBWF
Microsoft Firewall				✓	✓	✓	✓
Microsoft AntiMalware & Windows Defender				✓		✓	
Session brokers		**Smart Zero**	**ThinPro**	**WE 8S**	**WES 7E**	**WES 7P**	**WES 2009**
Citrix XenDesktop		✓	✓	✓	✓	✓	✓
VMware Horizon View		1.7	1.7	5.2	5.2	5.2	5.2

Technical Specifications

Leostream Desktop Connection broker (available from vendor website)				from vendor site	from vendor site	
Management Tools	**Smart Zero**	**ThinPro**	**WE 8S**	**WES 7E**	**WES 7P**	**WES 2009**
HP Device Manager	✓	✓	✓	✓	✓	✓
HP ThinState		✓	✓	✓	✓	✓
HP Easy Tools		✓		✓		✓
HP Smart Zero Client Services	✓					
Microsoft SCCM/EDM agent				✓	✓	
Additional Components	**Smart Zero**	**ThinPro**	**WE 8S**	**WES 7E**	**WES 7P**	**WES 2009**
HP Velocity	✓	✓	✓	✓	✓	✓
HP Connection Manager		✓		✓	✓	✓
HP Universal Print Driver			✓	✓	✓	
Windows Media Player			12	12	12	11
Windows Touch (Multi-touch support)			✓ (advanced)		✓ (multi)	✓ (single)
Multilanguage support			✓		✓	
Microsoft DirectAccess			Enterprise features via VL**		✓	
Microsoft BranchCache					✓	
Microsoft AppLocker					✓	
Microsoft Sideloading						
Audio CODECs included	**Smart Zero**	**ThinPro**	**WE 8S**	**WES 7E**	**WES 7P**	**WES 2009**
MP3	✓	✓	✓	✓	✓	✓
WMA stereo	✓	✓	✓	✓	✓	✓
AAC stereo & HE AAC	✓	✓				
Microsoft AC3 encoder			✓	✓	✓	✓
Microsoft Dolby audio decoder (AC-3, E-AC-3)			✓			
Video CODECs included	**Smart Zero**	**ThinPro**	**WE 8S**	**WES 7E**	**WES 7P**	**WES 2009**
MPEG-1	✓	✓	✓	✓	✓	✓
MPEG-4 part 2 (DivX, Xvid, H.263)	✓	✓	✓	✓	✓	
MPEG-4 part 10 (H.264, AVC)	✓	✓	✓	✓	✓	
WMV 7/8/9/ VC-1 & ASF Demuxer	✓	✓	✓	✓	✓	✓

NOTE: Other add-on software available (see: www.hp.com/support for latest list of available add-ons). Software performance and support may vary depending on customer environment and backend.

**Citrix provides two versions of Citrix Receiver, Standard (S) and Enterprise (E) for Windows Embedded Standard. Please go to Citrix.com for more info. Citrix Receiver and VMware Horizon client versions vary depending on operating systems.*

***Customers will require volume licensing (VL) agreement with Microsoft to enable "Enterprise features". Availability: 2H2013.*

TEXT AND GRAPHICS TERMINAL EMULATIONS *(provided by HP TeemTalk 7 in HP ThinPro, WES 7, and WES 2009 operating systems)*

Emulation	Terminal ID
ADDS A2	
AIXTerm	
ANSI BBS	
AT 386	
ATT4410	
HP 700-92/96	70092, 70094, 70096, 2392A, 2622A
HZ1500	
IBM3151	Mod11, Mod31
IBM3270	3278-2 (24x80), 3278-3 (32x80), 3278-4 (43x80), 3278-5 (27x132), 3278-2-E (24x80), 3278-3-E (32x80), 3278-4-E (43x80), 3278-5-E (27x132), 3279-2 (24x80), 3279-3 (32x80), 3279-4 (43x80), 3279-5 (27x132), 3287-1
IBM5250	5291-1, 5292-2, 5251-11, 3179-2, 3196-A1, 3180-2, 3477-FC (27x132), 3477-FG (24x80), 3486-BA, 3487-HA, 3487-HC, 3812-1
SCO Console	
Stratus V102	
TA6530	
TVI910	
TVI920	
TVI925	
TVI950	
TVI955	
VT52, VT100, VT100+, VT500 (7- or 8-bit)	VT100, VT101, VT102, VT125, VT131, VT132, M2200, VT220, VT240, VT320, VT340, VT420, VT510, VT520, VT525
VT HP220, VT UTF8	VT100, VT101, VT102, VT125, VT220, VT240, VT320, VT340, VT420, VT131, VT132, M2200, VT510, VT520, VT525
VT PCTerm	
Wyse PCTerm	
WY50	
WY50+	
WY60	

NOTE: Wireless features, performance and support may vary depending on environmental variables such placement, settings and firmware of your access points. Please contact your wireless vendor for support of your wireless environment.

Technical Specifications

LANGUAGES (Local User Interface)

The following local user interface languages are available for Windows Embedded Standard 7 and Windows Embedded Standard 2009:
English, French, German, Spanish, Dutch, Norwegian, Korean, Simplified Chinese, Traditional Chinese, and Japanese

The following local user interface languages are available for HP ThinPro and HP Smart Zero Technology:
English, French, German, Spanish, Korean, Simplified Chinese, Traditional Chinese, and Japanese

DIMENSIONS (WxDxH)

	HP t610 (standard chassis - vertical orientation)	HP t610 PLUS (expansion chassis - vertical orientation)
Without stand	8.7 x 1.6 x 9.4 in 22 x 4 x 24 cm	8.7 x 2.6 x 9.4 in 22 x 6.5 x 24cm
With stand	8.7 x 1.6 x 9.9 in 22 x 4 x 25.1 cm	8.7 x 2.6 x 9.9 in 22 x 6.5 x 25.1 cm

NOTE: Dimensions are approximate

WEIGHT

	HP t610 (standard chassis)	HP t610 PLUS (expansion chassis)
Without stand	3.285 lbs 1.49 kg	4.365 lbs 1.98 kg
With stand	3.417 lbs 1.55 kg	4.497 2.04 kg

NOTE: Weights are approximate

VOLUME

	HP t610 (standard chassis)	HP t610 PLUS (expansion chassis)
With stand	2.21 liters	3.43 liters

NOTE: Weights are approximate

POWER

HP t610 (standard chassis)

65 W
Worldwide auto-sensing 100-240 VAC, 50-60 Hz
Energy-saving automatic power-down
Surge-tolerant

HP t610 PLUS (expansion chassis)

85 W
Worldwide auto-sensing 100-240 VAC, 50-60 Hz
Energy-saving automatic power-down
Surge-tolerant

Technical Specifications

ENVIRONMENTAL

Operating temperature range	Standard 50° to 104° F (10° to 40° C) Using Quick Release with a flat panel monitor 50° to 95° F (10° to 35° C) Using PCIe Expansion Card 50° to 104° F (10° to 40° C)
Non-operating temperature range	-22° to 140° F (-30° to 60° C)
Humidity	Condensing 20% to 80% Non-condensing 10% to 90% non-condensing

NOTE: Specifications are at sea level with altitude derating of 1° C/300m (1.8° F/1000ft) to a maximum of 3 Km (10,000 ft), with no direct, sustained sunlight. Upper limit may be limited by the type and number of options installed.

REGULATORY COMPLIANCE

Safety	UL 1950, CSA 950; TÜV-GS (EN60 950); approved
RF Interference	FCC Class B; CE Mark; EN55022B; VCCI

Environmental Data

ECO-LABEL CERTIFICATIONS & DECLARATIONS

This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these markets:

- ENERGY STAR® Category B
- EPEAT® Gold registered where applicable/supported, see www.epeat.net for registration status by country
- Quad-head and six-head display models using the AMD FirePro™ graphics cards do not meet ENERGY STAR® or EPEAT® requirements.
- Models using the factory-installed HP 100 Mbps Mini PCIe Fiber NIC do not meet ENERGY STAR® or EPEAT® requirements.

ENERGY CONSUMPTION

	115 VAC (60Hz)	230 VAC (50Hz)	100 VAC (60Hz)
Standard models			
Idle State:	12.17 W	12.42 W	12.17 W
Off Mode:	0.78 W	0.88 W	0.78 W
PLUS chassis models			
PLUS chassis			
Idle State:	12.41 W	12.74 W	12.41 W
Off Mode:	0.77 W	0.82 W	0.77 W

NOTE: These measurements represent HP t610 with WES 2009, 2 GB Flash and 8 GB RAM installed. Other OS configurations may vary, but do not significantly exceed these measurements.
NOTE: This product is in compliance with US executive order 13221, WOL (wake on LAN) disabled. Off Mode measurements are made with WOL disabled.
NOTE: The actual power consumption at your location could vary and is dependent on many factors including but not limited to software load on the thin client, attached peripherals, and environmental factors.

HEAT DISSIPATION (BTU/hr)

	115 VAC (60Hz)	230 VAC (50Hz)	100 VAC (60Hz)
Standard models			
Idle State:	41.53	42.38	41.53
Off Mode:	2.66	3.00	2.66
PLUS chassis models			
PLUS chassis			
Idle State:	42.34	43.47	42.34
Off Mode:	2.63	2.80	2.63

NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour

Environmental Data

DECLARED NOISE EMISSIONS

(in accordance with ISO 7779 and ISO 9296)

	Sound Power (LWAd, bels)	Sound Pressure (LpAm, decibels)
Standard models		
No rotating part, not tested		
PLUS chassis models (Fans on, HDD spinning if applicable)		
Idle	3.0	21
Operation	3.1	21

Configuration tested included one AMD FT1(18W) processor, one 320 GB 7200 rpm SATA hard drive

LONGEVITY AND UPGRADING

This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:

- 6 USB ports
- 1 Serial Port (HP t610 standard chassis) or 2 Serial Ports / 1 Parallel Port (HP t610 PLUS)
- 2 memory slots
- 1 empty PCIe x16 slot (x4 channels) (HP t610 PLUS models without quad-head or six-head video options installed)
- 1 internal HDD drive slot (HP t610 PLUS models)

Spare parts are available throughout the warranty period and or for up to five (5) years after the end of production.

BATTERIES

This product complies with ISO standards:

- EU Directive 91/ 157/ EEC
- EU Directive 93/ 86/ EEC
- EU Directive 98/ 101/ EEC

Batteries used in the product do not contain:

- Mercury greater the 5ppm by weight
- Cadmium greater than 10ppm by weight
- Lead greater than 4000ppm by weight.
- Battery size: CR2032 (coin cell)
- Battery type: Lithium

RECYCLED MATERIAL

Product

- This product contains 20% or more post-consumer recycled plastics (by weight).
- This product is over 90% (by weight) recyclable when disposed of properly at end of life.

Packaging

- The packaging for this product is 90% or more (by weight) recyclable when disposed of properly.

Environmental Data

RoHS COMPLIANCE

Hewlett-Packard is committed to compliance with all applicable environmental laws and regulations, including the European Union Restriction of Hazardous Substances (RoHS) Directive. HP's goal is to exceed compliance obligations by meeting the requirements of the RoHS Directive on a worldwide basis.

MATERIAL USAGE

This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at: http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants - may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Packaging

HP follows these guidelines to decrease the environmental impact of product packaging:

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and corrugated materials.
- Reduce size and weight of packages to improve transportation fuel efficiency.

Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

End-of-life Management and Recycling

Environmental Data

Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers.

These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Hewlett-Packard Corporate Environmental Information
For more information about HP's commitment to the environment:

Global Citizenship Report:
http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html
Eco-label certifications:
http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html
ISO 14001 certificates:
http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html

Options and Accessories (sold separately)

		Part #
Accessories	HP Quick Release Kit	EM870AA
	HP Integrated Work Center Stand	LH526AA
Memory Upgrade	HP 2GB DDR3-1600 SODIMM Kit	B4U38AA B4U38AT
Communications[2, 3]	Allied Telesis Fiber Fast Ethernet Network Interface Card[1]	AT-2711FX
	Allied Telesis Fiber Gigabit Network Interface Card[1]	AT-2972SX
	Belkin USB-to-Serial Adapter[1]	EM449AA
Input Devices	HP PS/2 Standard Keyboard	DT527A
	HP USB Standard Keyboard	DT528A
	HP USB CCID Smartcard Keyboard	BV813AA
	HP PS/2 Optical Mouse	EY703AA
	HP USB Optical Scroll Mouse	DC172B
Monitors	HP L5009tm Touchscreen Monitor[7]	VK202AA
	ELO Touch 1529L Flat Panel - USB/serial combo[2,5,7]	E926109
	HP CPQ LA2206x 21.5-In LED LCD	XN376AA
	HP LA2206tm 21.5" LED LCD Touchscreen Monitor[8] (2 touch Optical technology)	B0L56AA
	HP L6015tm 15" Touchscreen Monitor[8] (5 touch Projective Capacitive)	A1X78AA
	HP L6017tm 17" Touchscreen Monitor[8] (5 touch Projective Capacitive)	A1X77AA
	LD 4220tm 42" LCD Interactive Touch Display, Digital Display[8]	XH216A8
	LD 4720tm 47" LCD Interactive Touch Display, Digital Display[8]	XH217AA
Graphics	HP DisplayPort to DVI-D Adapter	FH973AA FH973AT
	HP DMS-59 to dual VGA Adapter (for use with pre-configured quad-head models only)	GS567AA
	HP DMS-59 to dual DVI-I Adapter (for use with pre-configured quad-head models only)	DL139A
	HP DMS-59 to dual DisplayPort Adapter (for use with pre-configured quad-head models only)	XP688AA
External Storage	16GB USB 2.0 Flash Drive[6]	P-FD16GHP115-EF
	8GB USB 2.0 Flash Drive	P-FD8GB-HP115-EF
	4GB USB 2.0 Flash Drive	P-FD4GB-HP115-EF

Options and Accessories (sold separately)

Security	HP USB CCID Smartcard Keyboard	BV813AA
	Gemalto PC USB-TR Card Reader[1]	HWP117685A
	Gemalto .NET v2+ Smart Card[1]	HWP115303B HWP115647C
	SCM SCR331 USB Smart Card Reader[1]	904054
	HP Keyed Cable Lock	BV411AA
Care Pack Services[4]	9x5 Next-Business-Day Advanced Exchange - 3 Years	331653-001 U4847E[5]
	9x5 Next-Business-Day On-Site Coverage - 3 Years	331655-001 U4849E[5]
	Hardware Installation	331686-001; UJ865E

[1] Option, drivers, warranty, and support are available directly from third party.
[2] Drivers must be installed. For a complete list of monitors compatible with HP thin clients, it is important to cross-reference the supported video resolutions of the HP thin client to the supported resolutions of the monitor. Most HP monitors have one or more supported resolutions that match HP thin client products.
[3] Only serial is supported.
[4] Service levels and response times for HP Care Pack Services may vary depending on your geographic location. Restrictions and limitations apply. For details, visit: www.hp.com/go/carepack.
[5] U4847E is available in all regions; U4849E is available in Latin America and Asia-Pacific/Japan.
[6] Not supported with HP ThinPro or HP Smart Zero Technology HP t610 thin clients.
[7] Supported on HP t610 WES2009 and WES7P OS thin clients
[8] Multi-touch only supported on HP t610 WES7P OS thin clients

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